

IN THE CLAIMS

1. A high pressure post valve removably attachable to a high pressure gas cylinder having a gas outlet opening, said valve comprising:

a valve body having an internal aperture for receiving a valve actuator for internal connection and seating within the valve body, said valve body having a threaded extension for threadedly connecting the valve body to the gas cylinder, said threaded extension including a gas inlet orifice in alignment with the internal aperture for the passage of high pressure inlet gas to the valve actuator;

said valve actuator including an annular valve seat surrounding a valve cavity, said valve seat disposed at a lower end of the valve actuator, said valve seat being longitudinally movable within the internal aperture in the valve body by manipulation of the valve actuator to open and close the valve inlet orifice, and wherein said valve body includes

valve seat material adjacent to and surrounding the gas inlet orifice such that longitudinal movement of the annular valve seat in sealing contact with the valve seat material to close said valve provides sealing of the valve cavity in an area surrounding the gas inlet orifice, and such that longitudinal movement of the valve seat to open the valve prevents any direct contact of high pressure inlet gas against the valve seat material.

2. A high pressure post valve in accordance with claim 1, wherein the valve seat material comprises a polymer or elastomer.

3. A high pressure post valve in accordance with claim 1, wherein the actuator valve seat comprises brass.

4. A high pressure post valve in accordance with claim 1, wherein all of the valve seat material is disposed below the gas inlet orifice.

5. A high pressure post valve in accordance with claim 1, wherein the valve seat includes exterior threads adjacent mating threads cut in an adjacent surface of the valve body so that rotational movement of the valve seat raises or lowers the valve seat with respect to the valve seat material.

6. A high pressure post valve in accordance with claim 1, further including a filter disposed within the gas inlet orifice for removing solid particles entrained in the gas entering the gas inlet orifice.

7. A high pressure post valve in accordance with claim 6, wherein the filter disposed within the gas inlet orifice is in longitudinal alignment with the internal aperture in the valve body, and wherein the valve body includes a gas outlet orifice disposed at a right angle to said gas inlet orifice and said internal aperture in the valve body.

8. A high pressure post valve in accordance with claim 7, wherein the filter is a sintered metal filter that permits gas to pass therethrough and retains solids.

9. A high pressure post valve in accordance with claim 8, wherein the filter is sintered metal.

10. A method of manufacturing a high pressure post valve including a valve body and a valve actuator for internal connection and seating within the valve body comprising:

forming a valve body including an internal aperture for receiving the valve actuator and a threaded extension for connection to the high pressure gas cylinder, said threaded extension including a gas inlet orifice in alignment with said internal aperture for the passage of inlet gas to the valve actuator;

connecting the valve actuator to said valve body, within the internal aperture, said valve actuator including an annular valve seat surrounding a valve cavity, said valve seat disposed at a lower end of the valve actuator, said valve seat being longitudinally movable within the internal aperture in the valve body by manipulation of the valve actuator to open and close the valve inlet orifice, and wherein said valve body includes

valve seat material adjacent to and surrounding the gas inlet orifice such that longitudinal movement of the annular valve seat in sealing contact with the valve seat material to close said valve provides sealing of the valve chamber in an area surrounding the gas inlet orifice, and such that longitudinal movement of the valve seat to open the valve prevents any direct contact of high pressure inlet gas against the valve seat material.

11. A method in accordance with claim 10, wherein the valve seat material comprises a polymer or elastomer.

12. A method in accordance with claim 10, wherein the actuator valve seat comprises brass.

13. A method in accordance with claim 10, wherein all of the valve seat material is disposed below the gas inlet orifice.

14. A method in accordance with claim 10, wherein the valve seat includes exterior threads adjacent to mating threads cut in an adjacent surface of the valve body so that rotational movement of the valve seat raises or lowers the valve seat with respect to the valve seat material.

15. A method in accordance with claim 10 further including disposing a filter in the gas inlet orifice.

16. A method in accordance with claim 15, wherein the filter is sintered metal.

17. A method in accordance with claim 16, wherein the filter is sintered bronze.

18. A method in accordance with claim 16, wherein the sintered metal filter is press-fitted into the gas inlet orifice.